```
SEQUENCE LISTING
<110 Wood Keith W
        Hartnett, James Robert
        Promega Corporation
  <120> Vectors for Directional Cloning
  <130> 341.030US1
  <140> 10/702,228
  <141> 2003-11-05
  <150> 10/678,961
  <151> 2003-10-03
  <160> 92
  <170> FastSEQ for Windows Version 4.0
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  <220>
  <221> misc_feature
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  <223> n = A, T, G, or C
  <400> 1
  aaggagcgat cgccatgn
                                                                          18
  <210> 2
  <211> 10
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  <223> A synthetic DNA fragment, wherein nnn is the first codon which is 3'
        to the start codon followed by the remainder of an open reading frame
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  <221> misc_feature
  <222> 8-10
  <223> n = A, T, G, or C
  <400> 2
  cgccatgnnn
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nnnnnngtct tc
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<221> misc feature
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<223> n = A, T, G, or C
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nnnngaagag
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gcagcnnnnn nnn
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<223> n = A, T, G or C

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nnnnngagac g
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gccnnnnngg c
                                                                         11
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<223> n = A, T, G, or C
<400> 8
ggatgnnnnn nnnn
                                                                         14
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<221> misc_feature
<222> 1-5
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nnnnngagac c
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ccnnnnnng g
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<220>
<221> misc feature
<222> 3-9
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gcnnnnnng c
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<213> Artificial Sequence
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<221> misc feature
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<223> n = A, T, G, or C
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gtcccnnnn nnnnn
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<221> misc_feature
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nnnnnnnng atgc
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<221> misc_feature
<222> 4-9
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ccannnnnnt gg
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<211> 13
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<221> misc feature
<222> 5-9
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ggccnnnnng gcc
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<221> misc_feature
<222> 1-5
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<223> n = A, T, G, or C

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<400> 21
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<210> 22
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<221> misc_feature
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<400> 22
ctggagnnnn nnnnnnnnn nn
                                                                         22
<210> 23
<211> 10
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<213> Artificial Sequence
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<220>
<221> misc_feature
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<223> n = A, T, G, or C
<400> 23
gatnnnnatc
                                                                         10
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<211> 4
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<213> Artificial Sequence
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<223> A synthetic peptide
<400> 24
Thr Cys Thr Ser
<210> 25
<211> 14
<212> PRT
<213> Artificial Sequence
<223> A synthetic peptide
<400> 25
Thr Cys Cys Ser Ala Asn Asn Ile Met Thr Asn Lys Ser Arg
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<211> 12
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
<400> 26
Thr Cys Ala Ser Thr Asn Asn Phe Leu Ser Tyr Cys
                 5
<210> 27
<211> 19
<212> PRT
<213> Artificial Sequence
<223> A synthetic peptide
<400> 27
Thr Gly Thr Cys Arg Asn Asn Ile Met Val Thr Ala Asn Lys Asp Glu
Ser Arg Gly
<210> 28
<211> 13
<212> PRT
<213> Artificial Sequence
<223> A synthetic peptide
<400> 28
Thr Asn Asn Phe Leu Ser Tyr Cys Trp Ala Thr Cys Ile
<210> 29
<211> 12
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
<400> 29
Thr Cys Thr Ser Cys Asn Asn Leu Pro His Gln Arg
<210> 30
<211> 12
<212> PRT
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<400> 30
Thr Gly Thr Cys Cys Asn Asn Leu Pro His Gln Arg
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<210> 31
<211> 14
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
Thr Asn Gly Leu Ser Trp Cys Asn Asn Leu Pro His Gln Arg
<210> 32
<211> 4
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
<400> 32
Thr Gly Asn Cys
<210> 33
<211> 4
<212> PRT
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<400> 33
Thr Cys Tyr Ser
<210> 34
<211> 4
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<400> 34
Thr Cys Ala Ser
<210> 35
<211> 12
<212> PRT
<213> Artificial Sequence
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<223> A synthetic peptide
<400> 35
Thr Gly Cys Cys Thr Asn Asn Phe Leu Ser Tyr Cys
                5
                                     10
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<210> 36
<211> 12
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
<400> 36
Thr Gly Cys Cys Cys Asn Asn Leu Pro His Gln Arg
<210> 37
<211> 12
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
Thr Cys Thr Ser Cys Asn Asn Leu Pro His Gln Arg
<210> 38
<211> 12
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
Thr Ala Thr Tyr Cys Asn Asn Leu Pro His Gln Arg
<210> 39
<211> 4
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
<400> 39
Thr Cys Gly Ser
<210> 40
<211> 10
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<213> Artificial Sequence
<223> A synthetic DNA fragment
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<221> misc_feature
<222> 4-7
<223> n = A, T, G, or C
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<400> 40
caynnnnrtg
                                                                          10
<210> 41
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<212> PRT
<213> Artificial Sequence
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<223> A synthetic peptide
<400> 41
Thr Gly Cys Cys Ala Tyr Asn Ile Met Thr
<210> 42
<211> 18
<212> PRT
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<223> A synthetic peptide
Thr Cys Cys Ser Trp Asn Asn Ile Met Thr Asn Lys Ser Arg Phe Leu
                                     10
Tyr Cys
<210> 43
<211> 4
<212> PRT
<213> Artificial Sequence
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<223> A synthetic peptide
<400> 43
Thr Cys Cys Ser
<210> 44
<211> 14
<212> PRT
<213> Artificial Sequence
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Thr Tyr Ala Phe Leu Ser Cys Asn Asn Leu Pro His Gln Arg
<210> 45
<211> 17
<212> PRT
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<223> A synthetic peptide
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Thr Gly Cys Cys Tyr Asn Asn Phe Leu Ser Tyr Cys Leu Pro His Gln
Arg
<210> 46
<211> 14
<212> PRT
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<220>
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Thr Asn Asn Phe Leu Ser Tyr Cys Trp Arg Thr Gly Met Val
<210> 47
<211> 14
<212> PRT
<213> Artificial Sequence
<220>
<223> A synthetic peptide
<400> 47
Thr Gly Cys Cys Ala Asn Asn Ile Met Thr Asn Lys Ser Arg
<210> 48
<211> 12
<212> PRT
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<223> A synthetic peptide
<400> 48
Thr Gly Gly Cys Cys Asn Asn Leu Pro His Gln Arg
<210> 49
<211> 15
<212> PRT
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<223> A synthetic peptide
<400> 49
Thr Asn Cys Phe Ser Tyr Cys Cys Asn Asn Leu Pro His Gln Arg
                5
<210> 50
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<212> PRT
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<220>
<223> A synthetic peptide
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<210> 51
<211> 12
<212> PRT
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<223> A synthetic peptide
Thr Cys Lys Ser Gly Asn Asn Val Ala Asp Glu Gly
<210> 52
<211> 13
<212> PRT
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<223> A synthetic peptide
Thr Asn Asn Phe Leu Ser Tyr Cys Trp Gly Thr Gly Val
<210> 53
<211> 12
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<223> A synthetic peptide
Thr Gly Thr Ser Gly Asn Asn Val Ala Asp Glu Gly
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<222> 4-7
<223> n = A, T, G, or C
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gacnnnngtc
                                                                         10
<210> 55
<211> 10
<212> DNA
<213> Artificial Sequence
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<223> A synthetic DNA fragment
<220>
<221> misc feature
<222> 4-7
<223> n = A, T, G or C
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gaannnnttc
                                                                         10
<210> 56
<211> 13
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<400> 56
Thr Asn Asn Phe Leu Ser Tyr Cys Trp Gly Thr Cys Val
<210> 57
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<210> 58
<211> 4
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<400> 58
Thr Ala Cys Tyr
<210> 59
<211> 13
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<223> A synthetic peptide
<400> 59
Thr Ala Cys Tyr Thr Asn Asn Phe Leu Ser Tyr Cys Trp
                 5
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<211> 12
<212> PRT
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<223> A synthetic peptide
<400> 60
Thr Gly Gly Cys Gly Asn Asn Val Ala Asp Glu Gly
                5
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<211> 14
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Thr Gly Thr Ser Ala Asn Asn Ile Met Thr Asn Lys Ser Arg
<210> 62
<211> 8
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Thr Gly Gly Cys Gly Cys Asn Ala
<210> 63
<211> 14
<212> PRT
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<400> 63
Thr Ala Thr Tyr Ala Asn Asn Ile Met Thr Asn Lys Ser Arg
<210> 64
<211> 13
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<400> 64
Thr Cys Cys Ser Thr Asn Asn Phe Leu Ser Tyr Cys Trp
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Thr Thr Ala Leu Cys Asn Asn Leu Pro His Gln Arg
<210> 66
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<212> PRT
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Thr Asn Asn Phe Leu Ser Tyr Cys Trp Thr Thr Cys Phe
<210> 67
<211> 12
<212> PRT
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<223> A synthetic peptide
Thr Gly Thr Ser Cys Asn Asn Leu Pro His Gln Arg
<210> 68
<211> 14
<212> PRT
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<223> A synthetic peptide
Thr Thr Ala Leu Ala Asn Asn Ile Met Thr Asn Lys Ser Arg
<210> 69
<211> 17
<212> DNA
<213> Artificial Sequence
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<221> misc_feature
<222> 14
<223> n = A, T, G, or C
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aaggagcgat cgcnatg
                                                                          17
<210> 70
<211> 15
<212> DNA
<213> Artificial Sequence
<220>
<223> A synthetic DNA fragment
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<221> misc_feature
<222> 1-3
<223> n = A, T, C, or G, wherein n_1-n_3, n_2n_3G, or n_3GC is codon which is
      not a stop codon
<400> 70
nnngcgatcg ccatg
                                                                          15
<210> 71
<211> 12
<212> DNA
<213> Artificial Sequence
<223> A synthetic DNA fragment, wherein the complement to the remainder of
      an open reading frame is present 5' to nnn.
<220>
<221> misc_feature
<222> 1-3
<223> n = A, T, G, or C
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nnncatggcg at
                                                                         12
<210> 72
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<221> misc_feature
<222> 1-3
<223> n = A, T, G or C, wherein n_1-n_3 is a codon that does not encode
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<220>
<221> misc feature
<222> 8-9
<223> n = A, T, G, or C, wherein TN_8N_9 is a codon that
      does not code for a stop codon
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<221> misc_feature
<222> 10-12
<223> n = A, T, C or G
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nnngtttnnn nn
                                                                           12
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<212> DNA
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<221> misc_feature
<222> 6-18
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<400> 73
ggatgnnnn nnnnnnn
                                                                          18
<210> 74
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<212> DNA
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<223> A synthetic DNA fragment
<220>
<221> misc_feature
<222> 1-13
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nnnnnnnn nnncatcc
                                                                          18
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<221> misc_feature
<222> 8-15
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cacctgcnnn nnnnn
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<221> misc_feature
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<400> 76
gctcttcnnn n
                                                                          11
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<222> 5-9
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ggccnnnnng gcc
                                                                         13
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gctcttcnnn n
                                                                         11
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<221> misc_feature
<222> 3-9
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ccnnnnnng g
                                                                         11
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<221> misc feature
<222> 5-9
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<210> 81
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<221> misc_feature
<222> 4-8
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gcannnnntg c
                                                                          11
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<221> misc_feature
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cccacannnn nnnnnnnn
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<210> 83
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<221> misc feature
<222> 1
<223> n = A, T, G, or C
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naaggagcga tcgccatgg
                                                                          19
<210> 84
<211> 18
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<220>
<223> A synthetic DNA fragment
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<221> misc_feature
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naaggagcga tcgccatg
                                                                          18
<210> 85
<211> 8
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<223> A synthetic peptide
<400> 85
Lys Glu Gln Gly Ala Ile Ala Met
<210> 86
<211> 12
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<221> misc_feature
<222> 1-3, 12
<223> n = A, T, G, or C
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nnngtttaaa cn
                                                                          12
<210> 87
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<221> misc_feature
<222> 1-3, 11
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<400> 87
nnngtttatc n
                                                                         11
<210> 88
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<211> 11

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<212> DNA
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<223> A synthetic DNA fragment
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<221> misc_feature <222> 1-3, 11
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nnngtttcca n
                                                                           11
<210> 89
<211> 19
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<221> misc_feature
<222> 1
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naaggattaa tcgccatgg
                                                                           19
<210> 90
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<213> Artificial Sequence
<223> A synthetic peptide
<400> 90
Lys Glu Gln Gly Leu Ile Ala Met
<210> 91
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<221> misc_feature
<222> 1-3, 12
<223> n = A, T, G or C
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nnngtttaaa tn
                                                                           12
<210> 92
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<212> DNA
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<213> Artificial Sequence

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<223> A synthetic DNA fragment

<220>
<221> misc_feature
<222> 7-10
<223> n = A, T, G or C

<400> 92
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ctcttcnnnn

10